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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/556,643

12/11/2006

Jurgen Gieshoff

UMICORE 0025-US

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EXAMINER

NGUYEN, TU MINH

ART UNIT

PAPER NUMBER

3748

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/556,643	<b>Applicant(s)</b> GIESHOFF ET AL.	
	<b>Examiner</b> TU M. NGUYEN	<b>Art Unit</b> 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 December 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

1. An Applicant's Request for Continued Examination (RCE) filed on November 2, 2010 has been entered. Per instruction from the RCE, an enclosed Applicant's Amendment has been entered. Claim 1 has been amended. Overall, claims 1-3 and 5-7 are pending in this application.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**3. Claims 1-3 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota et al. (U.S. Patent 6,367,246) in view of Hu et al. (U.S. Patent 6,044,644).**

Re claim 1, as shown in Figures 1-2, Hirota et al. disclose an exhaust-gas purification system for the exhaust gases of an internal combustion engine (diesel engine) of a motor-vehicle comprising a particulate filter (18), wherein a hydrocarbon adsorber (63a) having platinum on the hydrocarbon adsorber (see lines 14-28 of column 4); and the hydrocarbon adsorber is arranged closely upstream of the particulate filter (18, 60) in the under-floor area of the motor vehicle and wherein (i) the particulate filter is a wall flow filter (as clearly shown in Figure 2), which is coated with a second oxidation catalyst (platinum on the hydrocarbon adsorber) on an

Art Unit: 3748

entry side thereof and (ii) the hydrocarbon adsorber and the wall flow filter are both disposed in one converter housing (19).

Hirota et al., however, fail to disclose that the system further comprises a converter shell arranged in a location of the exhaust-gas system that is not part of an under-floor area of the motor-vehicle and includes a first oxidation catalyst; that a concentration of platinum on the hydrocarbon adsorber is up to 1 g/L of a filter honeycomb body volume; and that the particulate filter is separated from the hydrocarbon adsorber.

As shown in Figure 1, Hu et al. disclose an exhaust system of an internal combustion engine for a motor-vehicle comprising an under-floor catalyst (24) and a close-coupled converter shell (20). As indicated on lines 66-67 of column 5 and lines 25-39 of column 6, Hu et al. teach that it is conventional in the art to place the converter shell (20) closed to an outlet of the engine and at a location that is not part of an under-floor area of the motor-vehicle so that the converter shell is activated at an earlier time during engine “cold start” than that of the under-floor catalyst, wherein the converter shell includes a first oxidation catalyst to oxidize harmful emissions of HC and CO in an exhaust gas stream. It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the converter shell taught by Hu et al. in the system of Hirota et al., since the use thereof would have been routinely practiced by those with ordinary skill in the art to remove harmful emissions of HC and CO in Hirota et al. during an engine “cold start”.

Hirota et al. disclose the claimed invention except for specifying that an optimum range of the concentration of platinum on the hydrocarbon adsorber is up to 1 g/L of the filter honeycomb body volume. It would have been obvious to one having ordinary skill in the art at

Art Unit: 3748

the time the invention was made to provide a specific optimum range of the concentration of platinum on the hydrocarbon adsorber, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Hirota et al. disclose the claimed invention except for having the particulate filter separated from the hydrocarbon adsorber. It would have been obvious to one having ordinary skill in the art at the time the invention was made to separate the hydrocarbon adsorber from the particulate filter in Hirota et al., since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Re claim 2, in the modified system of Hirota et al., a zeolitic coating on a honeycomb body is used as the hydrocarbon adsorber, which includes a mixture of the zeolites ZSM-5, DAY (see lines 26-28 of column 4) and comprises platinum at a concentration of 0.1g/L of honeycomb body volume as a catalytically active component.

Re claim 3, in the modified system of Hirota et al., the first oxidation catalyst includes a catalytically active coating of platinum-activated aluminum oxide or aluminum silicate on a honeycomb body (see lines 4-42 of column 10 in Hu et al.).

Re claim 5, the modified system of Hirota et al. discloses the invention as cited above, however, fails to disclose that the hydrocarbon adsorber comprises a storage capacity for hydrocarbons in the range between 1 and 50 g.

Hirota et al. disclose the claimed invention except for specifying that an optimum range of the hydrocarbon adsorber storage capacity is between 1 and 50 g. It would have been obvious

Art Unit: 3748

to one having ordinary skill in the art at the time the invention was made to provide a specific optimum range of the hydrocarbon adsorber storage capacity, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Re claim 6, with the teaching from Hu et al., Hirota et al. further disclose a method of operating the exhaust-gas purification system, wherein during operating phases of the engine with exhaust-gas temperatures at the engine outlet below 200°C, the hydrocarbons emitted by the engine and not converted by the first oxidation catalyst are adsorbed at the hydrocarbon adsorber and the emitted soot particles are deposited on the particulate filter, while during operating phases of the engine with exhaust-gas temperatures at the engine outlet of more than 200°C, the emitted hydrocarbons are converted by the first oxidation catalyst (the converter shell (20) of Hu et al. includes a first oxidation catalyst to oxidize harmful emissions of HC and CO in an exhaust gas stream at engine “cold start”), and the particulate filter is regenerated from time to time, wherein for initiating the regeneration, the exhaust-gas temperature is raised by engine modifications at the site of the hydrocarbon adsorber above the desorption temperature of the hydrocarbons and the stored hydrocarbons are desorbed and catalytically burned at the second oxidation catalyst of the particulate filter to support the regeneration (lines 44-67 of column 5).

Re claim 7, in the method of Hirota et al., the concentration of hydrocarbons in the exhaust gas is raised by post-injecting hydrocarbons into the cylinders of the internal combustion engine during the storage phases in order to increase the mass of stored hydrocarbons (see lines 26-50 of column 8).

Art Unit: 3748

***Response to Arguments***

4. Applicant's arguments with respect to the references applied in the previous Office Action have been fully considered but they are moot in view of the new ground(s) of rejection.

***Communication***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tu M. Nguyen/

TMN

Tu M. Nguyen

November 22, 2010

Primary Examiner

Art Unit 3748